What is claimed is:

1. A method of demagnetizing magnetic media for recording data in a data storage device, comprising the steps of:

(a) placing the magnetic media in a magnetic field at a first strength level; and

(b) gradually reducing the magnetic field to a second strength level to essentially eliminate net magnetization in the magnetic media.

2. The method of claim 1, wherein step (b) further includes the steps of reducing the magnetic field by multiple stepwise decrements in the magnetic field to reach the second level.

3. The method of claim 2, wherein said stepwise decrements are separated by predetermined time periods.

4. The method of claim 2, wherein the magnitude of each decrement is based on the magnetic coercivity of the magnetic media.

5. The method of claim 2, wherein said first strength level is based on the magnetic coercivity of the magnetic media.

6. The method of claim 2, wherein said second strength level is substantially zero.

7. The method of claim 1, wherein said magnetic field is substantially perpendicular to the surface of the magnetic media.

8. The method of claim 1, wherein:

step (a) further includes the steps of:

positioning an electromagnet proximate the magnetic media; and

providing electrical power to the electromagnet to generate said magnetic field at said first level; and

step (b) further includes the steps of gradually reducing the electrical power to the electromagnet to reduce the magnetic field to said second level.

9. A method of demagnetizing a magnetic data disk for recording data in a disk drive, comprising the steps of:

(a) placing the magnetic data disk in a magnetic field at a first strength level; and

(b) gradually reducing the magnetic field to a second strength level to essentially eliminate net magnetization in the magnetic media.

10. The method of claim 9, wherein:

the data disk includes opposing surfaces having magnetic medium thereon;

step (a) further includes the steps of:

placing an electromagnet proximate each surface of the data disk, such that at least a portion of each surface of the data disk is between the electromagnets;

providing electrical power to the electromagnets to generate said magnetic field at said first level; and

rotating the data disk in relation to the electromagnets such that the magnetic filed is substantially perpendicular to said surfaces of the data disk.

11. The method of claim 9, wherein:

step (b) further includes the steps of reducing the magnetic field by multiple stepwise decrements in the magnetic field to reach the second level.

12. The method of claim 11, wherein said stepwise decrements are separated by predetermined time periods.

13. The method of claim 12, wherein the duration of each time period is based on the speed of rotation of the data disk.

14. The method of claim 12, wherein the duration of each time period is at least longer than duration of a revolution of the data disk.

15. The method of claim 11, wherein the magnitude of each decrement is based on the magnetic coercivity of the magnetic media.

16. The method of claim 10, wherein said magnetic field is substantially perpendicular to the surface of the magnetic media.

17. The method of claim 10, wherein step (a) further includes the steps of moving the electromagnets essentially radially in relation to the rotating data disk to expose recording area on the disk surfaces to said magnetic field.

18. An apparatus for demagnetizing magnetic media for recording data in a data storage device, comprising:

an electromagnet which generates a magnetic field when provided with electrical power;

a first support for positioning the magnetic media proximate the electromagnet such the magnetic field overlaps at least a portion of the magnetic media; and

a controller for selectively providing electrical power to the electromagnet to generate magnetic fields at different strength levels, wherein the controller is configured to gradually reduce electrical power to the electromagnet from a first power level to a second power level, to reduce the magnetic field from a first strength level to a second strength level, respectively, to essentially eliminate net magnetization in the magnetic media.

19. The apparatus of claim 18, wherein:

the magnetic media comprises a magnetic data disk having opposing surfaces for recording data thereon;

the electromagnet is positioned proximate a surface of the data disk;

the apparatus further comprises a motor for rotating the data disk in relation to the electromagnet such that the magnetic filed is substantially perpendicular to said surfaces of the data disk.

20. The apparatus of claim 18, wherein the controller is further configured to reduce the magnetic field by multiple stepwise decrements in the magnetic field to reach the second strength level.

21. The apparatus of claim 20, wherein said stepwise decrements are separated by predetermined time periods.

22. The apparatus of claim 21, wherein the duration of each time period is at least longer than duration of a revolution of the data disk.

23. The apparatus of claim 20, wherein the magnitude of each decrement is based on the magnetic coercivity of the magnetic media.

24. The apparatus of claim 18, wherein said magnetic field is substantially perpendicular to the surface of the magnetic media.

25. The apparatus of claim 19 further comprising:

a second support for moving the electromagnet essentially radially in relation to the rotating data disk to expose recording area on the disk surfaces to said magnetic field.

26. A method of demagnetizing magnetic media for recording data in a data storage device, comprising the steps of:

(a) determining a recording frequency for writing on the magnetic media with a transducer head, at which the amplitude of the transducer head readback signal from said portion of the magnetic media is essentially at noise level; and

(b) writing on the magnetic media at substantially said recording frequency, to substantially eliminate net magnetization in the magnetic media.

27. The method of claim 26, wherein:

step (a) further includes the steps of:

(i) writing on a portion of the magnetic media with the transducer head at a selected recording frequency;

(ii) reading from said portion of the magnetic media, generating a readback signal;

(iii) if the amplitude of the readback signal is not essentially at noise level, then repeating steps (i) through (iii) for a different selected recording frequency, until the amplitude of the readback signal is essentially at noise level; and

step (b) further includes the steps of writing on the magnetic media at the last selected recording frequency, to substantially eliminate net magnetization in the magnetic media.

28. The method of claim 26, wherein:

step (a) further includes the steps of:

writing on the magnetic media with a transducer head at one or more different recording frequencies, and comparing the amplitude of a readback signal at each recording frequency to noise level;

selecting a recording frequency at which the amplitude of the readback signal is essentially the same as the noise level; and

step (b) further includes the steps of writing on the magnetic media at substantially said selected recording frequency, to essentially eliminate net magnetization in the magnetic media.

29. The method of claim 26, wherein:

step (a) further includes the steps of:

(i) selecting a recording frequency;

(ii) writing on a portion of the magnetic media with a transducer head at the selected recording frequency;

(iii) reading from said portion of the magnetic media with said transducer head, generating a readback signal;

(iv) if the amplitude of the readback signal is greater than a noise level, then selecting another recording frequency, and repeating steps (ii) through (iv) until the amplitude of the readback signal is essentially at said noise level; and

step (b) further includes the steps of writing on the magnetic media at the last selected recording frequency.

30. The method of claim 29, wherein in step (a)(i) selecting a recording frequency includes selecting a nominally low frequency.

31. The method of claim 30, wherein the step of selecting another recording frequency comprises selecting a recording frequency higher than a preceding recording frequency.

32. The method of claim 29, wherein the step of selecting another recording frequency comprises selecting a recording frequency lower than a preceding recording frequency.

33. The method of claim 27, wherein:

the storage media comprises a magnetic data disk for writing data thereon in concentric tracks;

in step (a)(i) writing on the magnetic media comprises writing on a test track on the magnetic disk;

in step (a)(ii) reading from the magnetic media comprises reading from said test track on the magnetic disk; and

in step (b) writing on the magnetic media includes writing on multiple tracks on the magnetic disk at said last selected recording frequency, to substantially eliminate net magnetization in said multiple tracks.

34. A data storage device, comprising:

magnetic media for recording data thereon,

a transducer head for recording data on the magnetic head at different recording frequencies;

a controller configured for demagnetizing the magnetic media for recording data, wherein the controller: determines a recording frequency for writing on the magnetic media with a transducer head, at which the amplitude of the transducer head readback signal from said portion of the magnetic media is essentially at a noise level; and controls the transducer head to write on the magnetic media at substantially said recording frequency, to substantially eliminate net magnetization in the magnetic media.

35. The data storage device of claim 34, wherein the controller is further configured to:

(i) write on a portion of the magnetic media with the transducer head at a selected recording frequency;

(ii) read from said portion of the magnetic media, generating a readback signal;

(iii) if the amplitude of the readback signal is not essentially at a predetermined level, then the controller repeats steps (i) through (iii) for a different selected recording frequency, until the amplitude of the readback signal is essentially at the predetermined level; and

(iv) write on the magnetic media with the transducer head at the last selected recording frequency, to substantially eliminate net magnetization in the magnetic media.

36. The data storage device of claim 34, wherein the controller is configured to: .

writes on the magnetic media with the transducer head at one or more different recording frequencies, and compare the amplitude of a readback signal at each recording frequency to a noise level to selecting a recording frequency at which the amplitude of the readback signal is essentially the same as the noise level; and

write on the magnetic media with the transducer at substantially said selected recording frequency, to essentially eliminate net magnetization in the magnetic media.

37. The data storage device of claim 34, wherein the controller is configured to:

(i) select a recording frequency;

(ii) write on a portion of the magnetic media with the transducer head at the selected recording frequency;

(iii) read from said portion of the magnetic media with said transducer head, generating a readback signal;

(iv) compare the amplitude of the readback signal to noise level, such that if the amplitude of the readback signal is greater than a noise level, then the controller selects another recording frequency, and repeats steps (ii) through (iv) until the amplitude of the readback signal is essentially at said noise level; and

write on the magnetic media at the last selected recording frequency.

38. The data storage device of claim 37, wherein the controller initially selects a low recording frequency.

39. The data storage device of claim 38, wherein the controller selects said another recording frequency higher than a preceding recording frequency.

40. The data storage device of claim 37, wherein the controller selects said another recording frequency lower than a preceding recording frequency.

41. The data storage device of claim 34, wherein:

the storage media comprises a magnetic data disk for writing data thereon in concentric tracks in a disk drive;

the controller comprises a disk drive controller configured to:

write on a test track on the magnetic disk;

reading from the test track on the magnetic disk;

use said determined recording frequency to write on multiple tracks on the magnetic disk at said last determined recording frequency, to substantially eliminate net magnetization in said multiple tracks.

42. A method of using manufacturing a disk drive, comprising the steps of:

(a) providing a magnetic data disk without net magnetization;

(b) providing a transducer head for recording data on said magnetic data disk;

(c) providing a disk drive controller for controlling the transducer head in writing data on the magnetic data disk; and

(d) assembling the magnetic data disk, the transducer head and the controller for data record/playback operations.

43. The method of claim 42, wherein the magnetic disk is result of a sputtering process essentially without any net magnetization.

44. A method of demagnetizing magnetic data disk for recording data in concentric tracks in a data storage device, comprising the steps of:

(a) selecting multiple consecutive tracks; and

(b) recording on said multiple tracks with a transducer head by alternating the polarity of the write current in the transducer head from one track to the next, to substantially eliminate net magnetization in said multiple tracks.

45. The method of claim 44, wherein step (b) further comprises the steps of:

(i) stepping the head radially to a first track in said multiple tracks;

(ii) applying a write current to the transducer head and recording on the first track;

(iii) stepping the head radially over the next track;

(iv) reversing the polarity of the write current in the transducer head and recording on that track; and

(v) repeating steps (iii)-(iv) to the last track of said multiple tracks.

46. The method of claim 45, wherein in step (b) alternating polarity of the write current includes the steps alternating polarity of DC write current in the transducer from one track to the next.